

REMARKS

The specification has been reviewed, and clerical errors of the specification have been amended.

On page 2 of the Action, the drawings were objected to. In view of the objection, replacement sheets of Figs. 3 and 4 have been filed.

On page 2 of the Action, claim 1 was rejected under 35 U.S.C. 112, second paragraph. On page 3 of the Action, claims 1-3 were rejected under 35 U.S.C. 102(b) as being anticipated by Gifford, and claim 4 was rejected under 35 U.S.C. 102(b) as being anticipated by Gehring.

In view of the rejections, claims 1-4 have been cancelled, and new claims 5-12 have been filed.

The invention is directed to a self-tapping screw fastener and a push rod. Since the structures of the self-tapping screw fastener and the push rod are substantially the same, the invention is explained based on the self-tapping screw fastener. The self-tapping screw comprises a first rod having a hole with an inner peripheral surface therein, and a second rod screwed into and fastened to the first rod.

The second rod includes a threaded shaft having an external thread to operate as a tapping screw for tapping an internal thread in the inner peripheral surface to thereby be fastened to the first rod, and a smooth guide shaft projecting from an end of the threaded shaft coaxially therewith. The smooth guide shaft has an outer diameter smaller than an outer diameter of the external thread and larger than an inner diameter of the external thread and an inner diameter of the internal thread to form an annular step at a connecting portion between the smooth guide shaft and the threaded shaft. The annular step contacts a ridge of the internal thread adjacent thereto to prevent the second rod from being rotated in an unscrewed direction relative to the first rod.

AMENDMENTS TO THE DRAWINGS

In Figs. 3 and 4, --Prior Art-- has been added. The replacement sheets are attached herewith.

Namely, it is important in the invention to form the annular step between the smooth guide shaft and the threaded shaft. Since the annular step is formed, when the tap is being formed, a part of the inner peripheral surface is pushed into the portion contacting the annular step. Thus, after the tap is formed, the second rod securely engages the first rod and is prevented from loosening from the first rod.

In Gifford, a screw 1 includes a thread, and a spigot 3 consisting of a core 4 and a coating 5. An upper thread portion adjacent the coating 5 at a left side in the drawing is concaved, while an upper thread portion adjacent the coating at a right side is not concaved inwardly. The end of the thread portion extends to the spigot 3 without forming a step or concave. Therefore, there is no annular step on the core 4 between the thread and the spigot 3.

In the invention, the annular step is formed between the smooth guide shaft and the threaded shaft. When the tap is being made, a part of the inner peripheral surface is pushed into the portion contacting the annular step to prevent the second rod from disengaging from the first rod. No annular step is formed in Gifford.

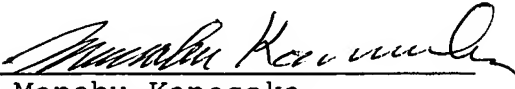
In Gehring, a threaded member 20 can be screwed into a bore 22 of a boss 10. However, a thread is simply formed on a shaft, and there is no annular step of the invention, as explained above.

In both references, the annular step of the invention is not formed in the shaft between the smooth guide shaft and the threaded shaft. Thus, the features of the invention are not disclosed or even suggested in the cited references.

Reconsideration and allowance are earnestly solicited.

Respectfully Submitted,

HAUPTMAN KANESAKA BERNER
PATENT AGENTS, LLP

By 
Manabu Kanesaka
Reg. No. 31,467
Agent for Applicants

1700 Diagonal Road, Suite 310
Alexandria, VA 22314
(703) 519-9785